



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
12.01.2022 Bulletin 2022/02

(51) Int Cl.:
G06Q 10/02 (2012.01) G06Q 50/30 (2012.01)

(43) Date of publication A2:
27.10.2021 Bulletin 2021/43

(21) Application number: **21161977.0**

(22) Date of filing: **11.03.2021**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(72) Inventors:
• **Mendes, Christopher Joseph**
Kitchener, Ontario N2B 1M2 (CA)
• **Fox, Stephen Michael**
Oakville, Ontario L6L 6V1 (CA)
• **Gaffney, Benjamin John Gordon**
Waterloo, Ontario N2T 2W8 (CA)

(30) Priority: **20.04.2020 US 202063012536 P**
10.12.2020 US 202017117776

(74) Representative: **Vossius, Corinna**
Corinna Vossius IP Group
Patent- und Rechtsanwaltskanzlei
Buchenstrasse 17
82064 Straßlach-Dingharting (DE)

(71) Applicant: **GEOTAB Inc.**
Oakville, ON L6H 7V2 (CA)

(54) **SHARED VEHICLE I/O EXPANDER**

(57) System, apparatus, device and methods relating to a telematic vehicle sharing platform ecosystem and a telematic vehicle share I/O expander to automate sharing and management of a vehicle that is shared by more than one operator.

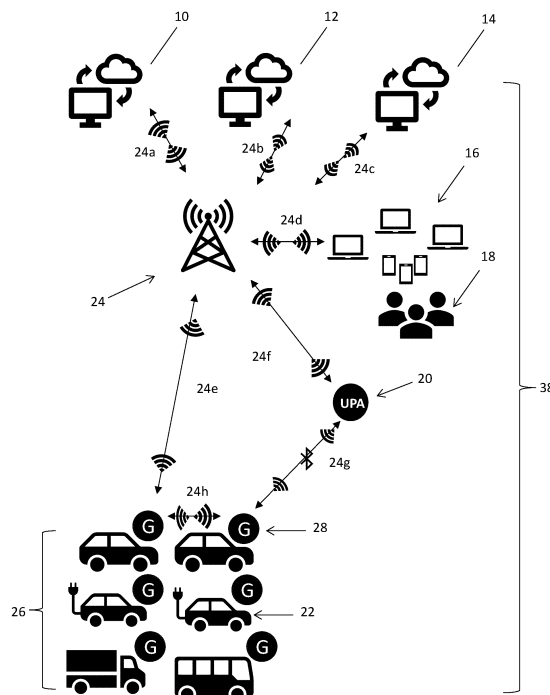


Figure 1a



EUROPEAN SEARCH REPORT

 Application Number
EP 21 16 1977

5

10

15

20

25

30

35

40

45

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2015/161832 A1 (ESSELINK CHAD EVERT [US] ET AL) 11 June 2015 (2015-06-11)	1-7, 11-20, 22-25,27	INV. G06Q10/02 G06Q50/30
Y	* paragraph [0003] - paragraph [0038]; figures 1-2,8A * * paragraph [0047] - paragraph [0058] * * paragraph [0071] - paragraphs [0079], [0082], [0100] *	8-10	
X	US 2014/309862 A1 (RICCI CHRISTOPHER P [US]) 16 October 2014 (2014-10-16)	1-7, 11-20, 22-25,27	
Y	* paragraph [0008] - paragraph [0084]; figures 1-4,7A,7B * * paragraph [0324] - paragraph [0342] * * paragraph [0489] - paragraph [0519] *	8-10	
X	US 2017/228945 A1 (LEE SANG J [US] ET AL) 10 August 2017 (2017-08-10)	1-7, 11-20, 22-25,27	
Y	* paragraphs [0008] - [0012], [0033] - [0039], [0045] - paragraphs [0056], [0061], [0068] - [0069]; figures 1-3 *	8-10	TECHNICAL FIELDS SEARCHED (IPC) G06Q
X	US 2018/091930 A1 (JEFFERIES JAMES [US]) 29 March 2018 (2018-03-29)	1-7, 11-20, 22-25,27	
Y	* paragraphs [0006] - [0024], [0083] - paragraph [0149]; figures 3-9 * * paragraph [0089] - paragraph [0113] * * paragraph [0122] - paragraphs [0139], [0216] *	8-10	
X	US 2017/230790 A1 (SKOMRA STEWART A [US] ET AL) 10 August 2017 (2017-08-10)	1-7, 11-20, 22-25,27	
Y	* paragraphs [0065] - [0081], [0100] - paragraph [0164]; figures 2A-3, 5-7 *	8-10	
	----- -/--		
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 30 November 2021	Examiner Krafft, Gerald
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

5

50

55



EUROPEAN SEARCH REPORT

Application Number
EP 21 16 1977

5

10

15

20

25

30

35

40

45

5

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 2019/092282 A1 (STANFIELD JOHN [US] ET AL) 28 March 2019 (2019-03-28)	8-10	
A	* paragraph [0024] - paragraph [0056]; figures 1, 2, 3, 8 *	28,29	
A	US 2017/053470 A1 (BERGERHOFF NIKOLAS [CA] ET AL) 23 February 2017 (2017-02-23) * figures 2, 8 *	28,29	
A	US 2014/266594 A1 (REISER DERIK [US]) 18 September 2014 (2014-09-18) * figures 53, 54 *	28,29	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
Place of search Munich		Date of completion of the search 30 November 2021	Examiner Krafft, Gerald
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



Application Number

EP 21 16 1977

5

10

15

20

25

30

35

40

45

50

55

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 21 16 1977

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-7, 11-27

Authentication a user with a vehicle via personal
authentication factors (personal attributes, e.g. via
biometrics or user owned devices)

2. claims: 8-10, 28, 29

Vehicle key device housed within part of the I/O expander
telematic device

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 21 16 1977

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-11-2021

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2015161832 A1	11-06-2015	CN 104702589 A	10-06-2015
		DE 102014224769 A1	11-06-2015
		US 2015161832 A1	11-06-2015

US 2014309862 A1	16-10-2014	NONE	

US 2017228945 A1	10-08-2017	AU 2015323951 A1	04-05-2017
		BR 112017006488 A2	03-07-2018
		CA 2962635 A1	07-04-2016
		CN 107077133 A	18-08-2017
		EP 3201708 A1	09-08-2017
		IL 251384 A	29-03-2018
		US 2016093216 A1	31-03-2016
		US 2017228945 A1	10-08-2017
		US 2020196121 A1	18-06-2020
		WO 2016054010 A1	07-04-2016

US 2018091930 A1	29-03-2018	NONE	

US 2017230790 A1	10-08-2017	US 2014357295 A1	04-12-2014
		US 2017230790 A1	10-08-2017
		WO 2014197497 A2	11-12-2014

US 2019092282 A1	28-03-2019	US 8841987 B1	23-09-2014
		US 2015145645 A1	28-05-2015
		US 2019092282 A1	28-03-2019

US 2017053470 A1	23-02-2017	CN 107074174 A	18-08-2017
		EP 3201049 A1	09-08-2017
		US 2016098870 A1	07-04-2016
		US 2017053470 A1	23-02-2017
		WO 2016054276 A1	07-04-2016

US 2014266594 A1	18-09-2014	CA 2906679 A1	25-09-2014
		CA 3107853 A1	25-09-2014
		EP 2972769 A2	20-01-2016
		US 2014266594 A1	18-09-2014
		US 2014278555 A1	18-09-2014
		US 2014278599 A1	18-09-2014
		US 2014278607 A1	18-09-2014
		US 2014278608 A1	18-09-2014
		US 2017039489 A1	09-02-2017
		US 2017294114 A1	12-10-2017
		US 2019315313 A1	17-10-2019
		US 2020331433 A1	22-10-2020
		WO 2014152916 A2	25-09-2014

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

30-11-2021

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82